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ABSTRACT

This paper highlights how introductory textbooks on Egyptian art inhibit understanding by reinforcing student preconceptions, and demonstrates another approach to discussing space with a classroom exercise and software. The alternative approach, an active model for spatial representation, introduced here was developed by adapting classroom approaches to multimedia computer applications, and differs from textbook approaches in the following ways: (1) establishes connections between students' patterns of thought and those of Egyptian artists, rather than concentrating on comparisons which reinforce differences; (2) invites student participation in other methods of thinking; and (3) concludes with a comparison that reveals the limitations of a traditional approach. The classroom exercise involves an eye and hand exercise, and the interactive multimedia software, "Thinking Egyptian," which uses animation, interactive responses, and problem solving approaches to involve the user in the visual logic of Egyptian art. To help students stretch beyond the comfortable visual assumptions of a lifetime, instructors are encouraged to develop active methods for involving students in different approaches to visual thinking. The classroom exercise and software present methods for expanding visual thinking and helping students recognize the logic and limitations of both the familiar and the foreign. Twelve figures offer examples of Egyptian art and provide reproductions of screens of the "Thinking Egyptian" software. (Contains nine references.) (MAS)

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Thinking Egyptian: Active Models for Understanding Spatial Representation

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Ellen Schiferl

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One goal of multiculturalism in education is increased understanding and art history, an inherently multicultural discipline, has pursued this target in two major ways: (a) Inclusion: expanding the canon to include more women, minorities and non-Western cultures, (b) Contextualization: discussing cultures according to their value systems rather than by the standards of our culture. To achieve a more multicultural outlook, introductory textbooks have partially revised their texts to address issues of race, class and gender. However, cultural bias in spatial representation has been generally overlooked despite the centrality of spatial concepts for understanding art. Studies of Egyptian art clearly reflect this problem. Three major art history survey textbooks continually measure Egyptian art according to a narrowly defined "realism" that echoes contemporary definitions of reality while explaining the "strangeness" of Egyptian art in terms of religious beliefs. This paper first highlights how introductory textbook chapters on Egyptian art inhibit understanding by reinforcing student preconceptions and second demonstrates another approach to discussing space with classroom exercises and software. This study does not aim to eradicate bias, an impossible quest in a discipline dependent on comparative techniques, but to present active visualization models that expand student understanding of different approaches to spatial representation.

Textbook Evaluations of Egyptian Art

Old and new, evolutionary and contextual, approaches blend uncomfortably in recent art history textbooks. Traditionally, scholars evaluated art according to concepts of the visible world developed in ancient Greece and post-medieval Europe. Pejorative evaluations, like "decidedly primitive," may not survive the next edition of Janson's *History of Art*, but more subtle descriptive language often reinforces the familiar at the expense of the foreign (Janson, 55). The three major textbooks, *Gardner's Art Through the Ages* (authored by H. De la Croix, R. G. Tansey and D. Kirkpatrick), F. Hartt's *Art. A History of Painting, Sculpture. Architecture*, and A. Janson's *History of Art*, compare Egyptian art, usually unfavorably, to a "realistic" art shaped by contemporary scientific methods and technology. To communicate the nature of Egyptian art, the authors focus on its differences and limitations compared to popular 20th century approaches and consequently present 20th century methods as the standard.

Realism defined as impersonal observation of the physical environment. Like scientists who strive for objective observation, artists who carefully observe the visible environment with detachment and detail are praised for accuracy and realism. Both *Gardner's Art Through the*

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Ages and Janson applaud the Egyptian artists who depart from the standard Egyptian style reserved for important figures.

> *The outsize and ideal proportions bespeak Ti's rank, as does the conventional pose, which contrasts with the realistically rendered activity of his diminutive servants and with the precisely observed figures of the birds and animals among the papyrus buds.*
>
> *Although the water and the figures are represented by the usual conventions, cat, fish, and birds show a naturalism based on visual perception similar to what we see in the Geese of Medum. (De La Croix, 86, 95)*
>
> *...these scenes form a seasonal cycle, a sort of perpetual calendar of recurrent human activities for the spirit of the deceased to watch year in and year out. For the artist, on the other hand, these scenes offered a welcome opportunity to widen his power of observations, so that in details we often find astounding bits of realism. (Janson, 63)*

Such statements validate students who assume that good art represents the external surfaces of objects and "detailed" images are superior to "simple" ones. For both textbooks and students, realism defined by observation becomes the gauge of accuracy and truth.

> *A Canon of ideal proportions, designated as appropriate for the representation of imposing majesty, was accepted and applied quite independently of optical fact...The Egyptian sculptor seems to have been indifferent to realistic representation of the body, preferring to strive for fidelity to nature in the art of portraiture. (De La Croix, 85)*

For Hartt, the observation of nature found outside the standard approach to imagemaking is one of the major contributions of Egyptian art to subsequent cultures.

> *...the road that Egyptian artists, despite the severe conventions within which they were obliged to work, opened up for the understanding of nature and its re-creation in visible form was the one soon to be followed by every ancient civilization.* (Hartt, 101)

The focus on clear and complete information that stimulated Egyptian art and continues in many subsequent cultures including ancient Greece, the Middle Ages, as well as contemporary graphic design and videos, is not recognized as an enduring accomplishment. Rather the dominant method of representation is perceived as a restrictive convention while detailed observation is regarded as a sign of independence from cultural constraints.

The Camera Defines Realistic Representation. In the introductory chapter of *Art Through the Ages*, the authors strive to avoid negative comparisons between cultures, but then use a machine as the ultimate measure of realism.

> *...nor is it the case that artists of one period "see" more "correctly" and render more "skillfully" than those of another. Rather, it seems that artists represent what they conceive to be real, not what they perceive. They bring to the making of images conceptions that have been instilled in them by their cultures. They understand the visible world in certain unconscious, culturally agreed on ways and thus bring to the artistic process ideas and meanings out of common stock. They record not so much what they see as what they know or mean. Even in the period of dominant realism in recent western European art, great*

deviations from camera realism have set in. (De La Croix, 18-19, see also Hartt, 18)

Like the textbook, many entering students describe accurate representation with the phrase "as realistic as a photograph" without careful consideration of the limitations of the photographic medium.

20th century Comparisons Focus on the Limits of Egyptian art. Introductory texts reinforce negative evaluations by comparing Egyptian style to images presumably so familiar to students that a specific comparative example is not necessary.

> *Obviously, the modern notion of representing a scene as it would appear to a single observer at a single moment is as alien to the Egyptian artist as it had been to his Neolithic predecessor; he strives for clarity, not illusion, and therefore he picks the most telling view in each case. But he imposes a strict rule on himself: when he changes his angle of vision, he must do so by 90 degrees, as if he were sighting along the edges of a cube. As a consequence, he acknowledges only three possible views: full face, strict profile, and vertically from above. Any intermediate position embarrasses him (note the oddly rubber-like figures of the fallen enemies...)... And since the scenes depict solemn and, as it were, timeless rituals, our artist did not have to concern himself with the fact that this method of representing the human body made almost any kind of movement or action practically impossible. In fact, the frozen quality of that image would seem especially suited to the divine nature of the Pharaoh; ordinary mortals* act, *he simply is...The Egyptian style of representing the human figure, then seems to have been created specifically for the purpose of conveying in visual form the majesty of the divine king...* (Janson, 57)

The author uncritically presents the Renaissance approach using a single observer, single moment and single eye as the modern benchmark for comparisons. As noted above, this approach accords with scientific procedures and camera photography.

Beyond Verbal Descriptors: The persistence of negative evaluations of Egyptian art based on contemporary comparisons is surprising since art historians for over a decade have relied heavily on contextual studies to interpret art according to the values of the societies that produced it. The contextual approach developed as a counterweight to the linear evolutionary model that hailed the rise of new techniques, such as foreshortening and linear perspective, as an improvement over previous methods. Yet in spite of efforts to judge cultures according to their own values rather than by the standards of our own culture, the scientific and technological bias still pervades discussions of other cultures.

Arguably, cultural bias cannot be eradicated from discussions of other cultures, and despite efforts to cleanse texts of verbal bias in race, class and gender, bias can be found wherever comparative language and qualitative assessments appear. The term "realism" has always been problematic but even phrases like "keen observation" reflect cultural bias. Rather than call for more textual revision, the goal of art historians as educators can shift from descriptive language to image-based methods of teaching art history.

Active Models for Spatial Representation

For art history, visual methods should be the center, rather than the periphery, of communication. Computer and video technologies allow instructors

to transfer the visual techniques used in the classroom to durable media. Thus the instructor's hand tracing the movement of the viewer's eye over a projected slide becomes an animated diagram overlaying a digitized image and the chalkboard drawing illustrating the steps leading to the final work becomes a video for students to review at their leisure. This paper relies on examples from classroom techniques and software I developed by adapting classroom approaches to multimedia computer applications.

The approach used for studying Egyptian art can be extended to the study of many other cultures by focusing on similar basic questions. Following the contextual approach, the content focuses on understanding art through its function: What is the purpose of art in the culture? What is it and how is it used? How does the work reflect cultural concepts and priorities? How well does the form fit the concepts?

The approach differs from the textbooks by:

(1) Establishing connections first. Textbooks lead with comparisons that reinforce differences. When students can connect their patterns of thought to Egyptian artists, they find the art easier to comprehend.

(2) Inviting student participation in other methods of thinking. Students participate in the decision making process. By recognizing the visual logic of Egyptian art, they can more readily understand Egyptian art on its own terms.

(3) Concluding with a comparison that reveals the limitations of a contemporary approach. Comparisons to contemporary styles effectively show differences in visual thinking but when textbooks begin with these comparisons, they establish 20th century approaches as the standard. Textbooks further reinforce this bias by noting the limitations of Egyptian style. Since so many entering introductory art history students consider Egyptian art limited and unrealistic, the third section of the software counterbalances these ideas by showing the limitations of a contemporary painting employing the same subject matter as an Egyptian example.

Classroom Exercise: Eye and Hand

Prelude and Timing. This exercise follows general discussion of Egyptian religious concepts and values relative to geography and pyramid architecture. Almost all surviving Egyptian art stems from tombs and was designed to ensure that life after death would continue the activities and pleasures of earthly life. To avoid the pitfall of an exercise where students try to produce what they think the instructor expects, do the exercise before students see any sculpted or painted images of Egyptian art in class or have been given much information about Egyptian religion.

Eye exercise. Ask each student to draw one human eye. While they are drawing, note whether any student looks at another person's eye. When students have had a few minutes to complete their drawing, draw a frontal eye on the blackboard. Ask students to raise their hand if they drew a frontal eye, with or without eyelashes, pupils, eyebrows, etc. Draw a profile and three-quarter view eye and repeat the question. Then ask if they looked at another person to help them draw an eye.

Observation. In dozens of classes and with hundreds of students, I have had only one student who did not draw a frontal eye. And no student ever looked at another person's eye to aid their drawing. (100% of the session attendees at the Tempe IVLA conference produced a frontal eye.)

Frontal Eye

Profile Three-quarter

Hand exercise. Repeat the exercise by asking students to draw one human hand. Ask how many did an open hand with thumb and all five fingers (palm up or down). Consider the variety of other options for hand positions.

Observation. In a class of thirty students, I typically have two or three who did another hand position. A very small percentage of students will study their hands before drawing.

Discussion: Why do so many students do a frontal eye? Why did so few look at a hand prior to drawing? What does this tell us about the way our minds process images? Students respond that the frontal eye contains the most complete information, an approach art historians sometimes call the most characteristic aspect, most characteristic view, or conceptual approach.

Develop the concept of most clear and complete information by showing an Egyptian painting of an important person. Ask which viewpoint would provide the most complete information for eye, shoulders, legs, and feet. Note the mixture of frontal and profile selections (figure 1).

Why do the Egyptians produce images based on the most complete information? In Egypt, artists played a vital role by ensuring the afterlife of the pharaoh and the royal elite. Paintings in tombs *became* not just represented, the object in the next life and thus artists exercised care to assure the most viable form.

Raise the question of the most complete information for the face next since this leads to more complex discussion. Most students select a frontal face while the Egyptians chose a profile. One reason the Egyptians select the profile view is the clear representation of the nose; in North America many professional portrait photographers virtually eliminate noses in frontal and three-quarter view faces through strategic lighting and photographic retouching (magazine covers provide excellent examples). Since Egyptian images ensured the life of forms after death, presumably the Egyptians considered the function of the nose -- breathing -- vital for afterlife; magazine ads regard noses as relatively unaesthetic and a distraction from other features.

Optional Discussion. Can you think of ways that our society uses the most complete information approach to communicate visual information? Possibilities include the signs for bicycle paths, representations of men and women for restrooms, images of wheelchairs to show access and reserved parking, and the trashcans on computer interfaces.

Summation. Egyptian artists created tomb images to *be*, not to be seen. As a creation rather than a representation, the art needed to be as clear and complete as possible. For the Egyptian artist, the religious function determined the form.

Software: Thinking Egyptian

Thinking Egyptian, interactive multimedia software, uses animations, interactive responses, and problem solving approaches to involve the user in the visual logic of Egyptian art.

Visual Logic of Construction. The key to art is selection. Why does the artist make certain choices? In *Thinking Egyptian*, users participate in a step by step decision making process to re-create an Egyptian painting featuring a rectangular pool surrounded by trees and stocked with fish and ducks (fig. 2). For the individual components of fish, ducks, and rectangular pool, the users choose which viewpoint communicates the clearest and most complete information and then compare their answer with the Egyptian approach. Typically users make the same selections that Egyptians made and thus connect their way of thinking with the Egyptian approach. For example, in figure 3, aerial, profile and frontal images of a fish appear and the user is asked to select the image that represents a fish. In this instance, the user has selected the aerial view shown on the left. The response distinguishes between point of view and completeness of information. Noting that all three images in the previous screen represent a fish, the next screen asks users to choose which image an Egyptian artist, intent on the most complete information for an image that would live forever, would select. (figure 4). When the user selects the profile view in the center, the program affirms that the user is thinking like an Egyptian artist and also shows the same form in a U.S. Forest Service sign to designate good fishing areas. By showing the visual logic of complete and clear information in our own environment, the program establishes links with Egyptian visual thinking and our own culture.

For the rectangular pool, users imagine the shape of the rectangular pool from verbal descriptions of different viewpoints (not shown) and in the next screen they choose which viewpoint would be appropriate for the Egyptian artist (figure 5). In the example, the user decides the aerial viewpoint contains the most complete information for the rectangular pool.

After users select the viewpoint for each individual item, they move to assembling the components and contending with problems created by placing the forms in a visually consistent way (figure 6). Through animated overlays, users can see the painting take shape and explore the effect of different choices. At any point, users may select to view the animated overlays superimposed on a neutral background or on the Egyptian painting shown in figure 2.

The placement of the trees around all four sides of the pool creates problems for the artist intent on clear and complete information. For the trees on the left side, the artist can choose to maintain the orientation and conceal the trunks of two trees (figure 7) or to clearly show the number and shape but shift the orientation (figure 8). The Egyptian artist's freedom to select the viewpoint appropriate for each object leads to this solution. Preliminary tests show that users quickly grasp Egyptian visual logic and can readily tackle the problem solving approach needed to place trees around the pool in a clear manner.

By participating in Egyptian visual logic, students gain a fuller understanding of the art and establish a measure of comfort and confidence with the images from a different culture. Since art history survey courses typically include Egyptian art at the beginning of the course, this approach opens the door for investigating other types of visual logic.

Contemporary Comparisons. After users delve into the visual logic of Egyptian art, they compare this approach to the visual logic of a contemporary

landscape artist who paints the same subject on the basis of what he sees. Users can opt to conceal or compare the Egyptian work with the contemporary example. As the previous software segment traced the decision making process of an Egyptian artist, this segment notes the decisions and problems encountered by 20th century artist Glen Bartlett when he paints a rectangular pool surrounded by trees and stocked with ducks and fish. Although he knows it is a rectangle, he depicts the pool as a trapezoid because that is how it appears (figure 9). Glen Bartlett cannot paint the fish since they appear below the water surface; while he knows they are there, he can't see them (figure 10). Although the trees are all the same size, he must depict them as different sizes since the ones farthest from him appear to be smaller. The front trees create a special problem; if he omits the trees to show the ducks then he isn't painting what he sees and if he includes the trees in the front he must obliterate the ducks (figure 11). To maintain visual consistency, he covers the ducks with trees.

In contrast to textbooks which present Glen Bartlett's approach as a realistic standard characterized by "optical fact" and "keen observation", the software reveals how this visual logic leads to conscious distortions and omissions. Comparisons reveal similarities as well as differences: both the Egyptian artist and Glen Bartlett use limited systems based on visually logical approaches to representation. For the Egyptian artist, the goal is a timeless image to exist for all eternity and for Glen Bartlett, the goal is an image based on the artist's viewpoint at a moment in time (figure 12).

Conclusion

In *The Unschooled Mind*, Howard Gardner observes that a major impediment to teaching is the durability of ideas formed early in childhood. (Gardner, 5, 3). Gardner's observations, valid for K-16 education, pertain especially well to multicultural disciplines such as art history. To help students stretch beyond the comfortable visual assumptions of a lifetime, instructors need to develop active methods for involving students in different approaches to visual thinking. The classroom exercise and software present methods for expanding visual thinking and leading students to recognize the logic and limitations of both the familiar and the foreign.

Credits

Text:
Hartt, F., *A History of painting, sculpture, architecture*, 3rd edition, 1989, and Janson, A., *History of art*, 3rd edition, 1986, copyright © by Prentice Hall, Englewood Cliffs, N. J. Reprinted by permission of the publisher.

De La Croix, H., R. G. Tansey, and D. Kirkpatrick, *Gardner's art through the ages*, 9th edition, copyright © 1991 by Harcourt Brace and Company, New York. Reprinted by permission of the publisher.

Photography:
figure 2. Garden with Fish Pond, fragment from tomb, Thebes. 18th Dynasty, painting. 26 cm. ht (London: British Museum) Copyright © British Museum. Reproduced by permission of the British Museum.

Software:
Schiferl, E. *Thinking Egyptian*. (ArtYes Productions). Copyright © 1994 Ellen Schiferl.

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figure 1

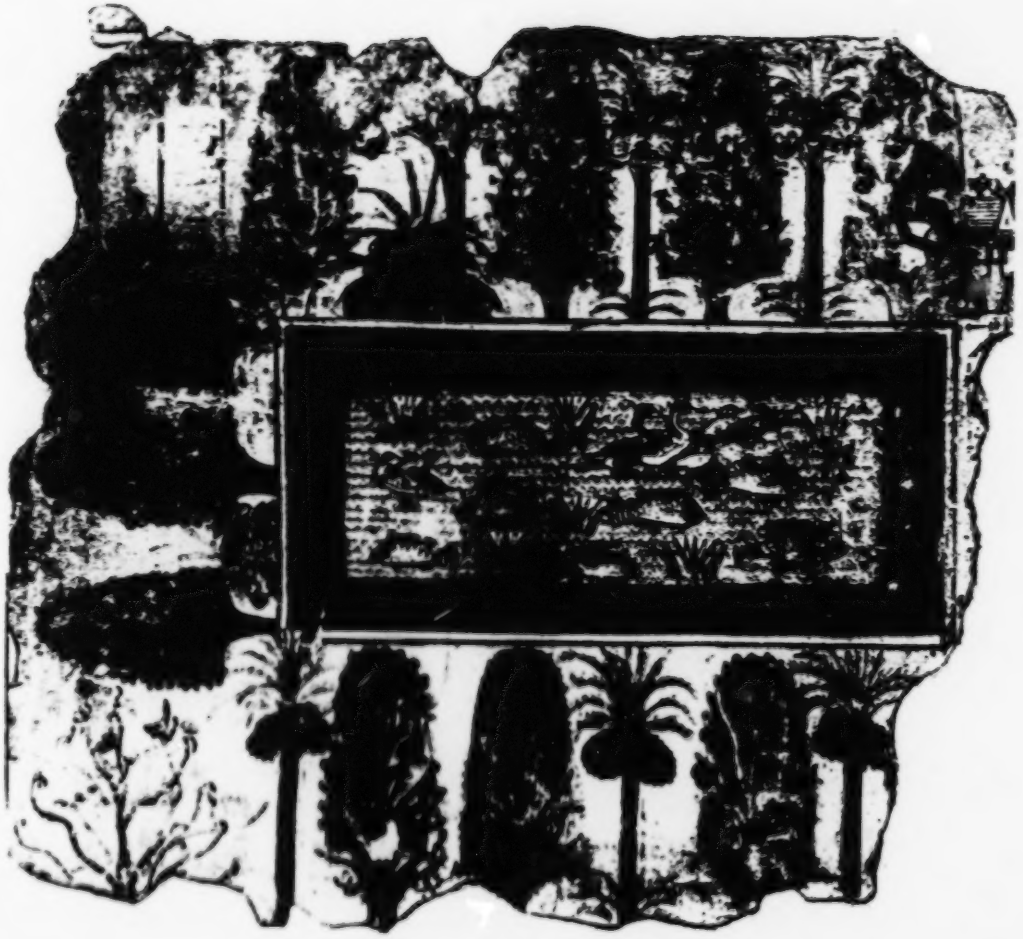

figure 2

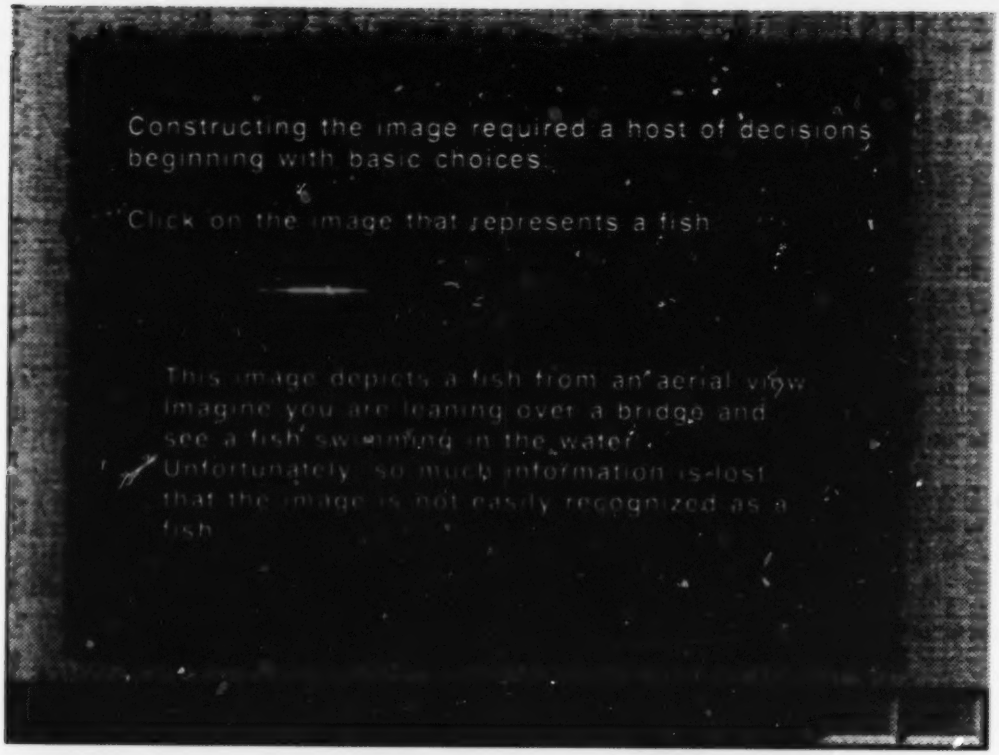
Constructing the image required a host of decisions beginning with basic choices.
Click on the image that represents a fish
This image depicts a fish from an aerial view. Imagine you are leaning over a bridge and see a fish swimming in the water. Unfortunately, so much information is lost that the image is not easily recognized as a fish.

figure 3

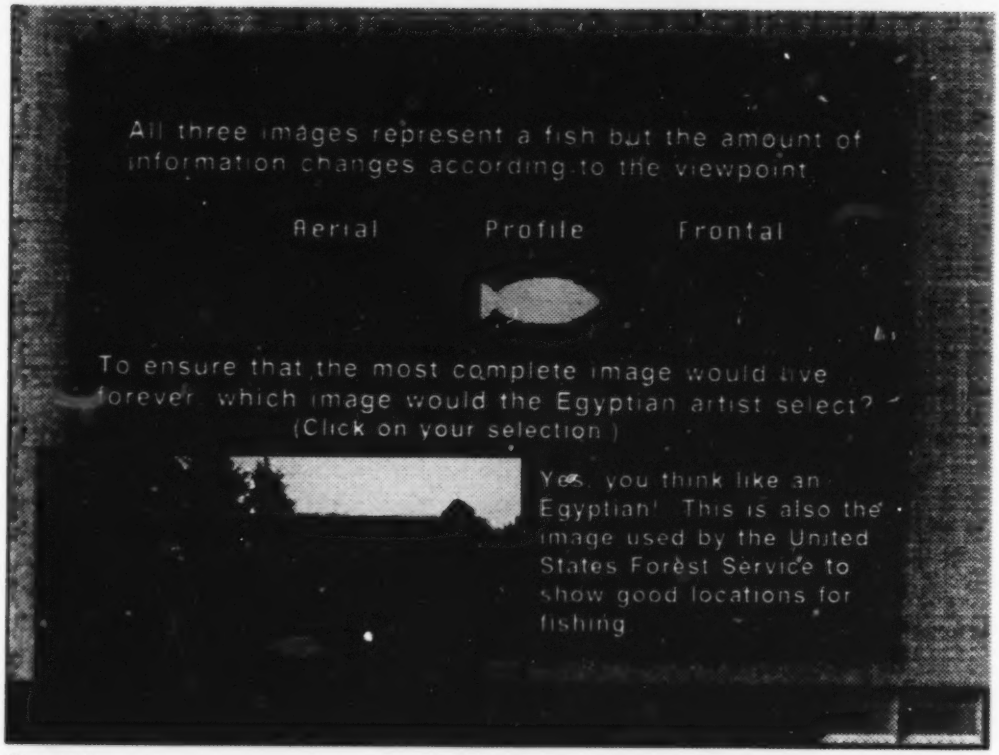
All three images represent a fish but the amount of information changes according to the viewpoint.
Aerial
Profile
Frontal
To ensure that the most complete image would live forever, which image would the Egyptian artist select?
(Click on your selection.)
Yes, you think like an Egyptian! This is also the image used by the United States Forest Service to show good locations for fishing.

figure 4

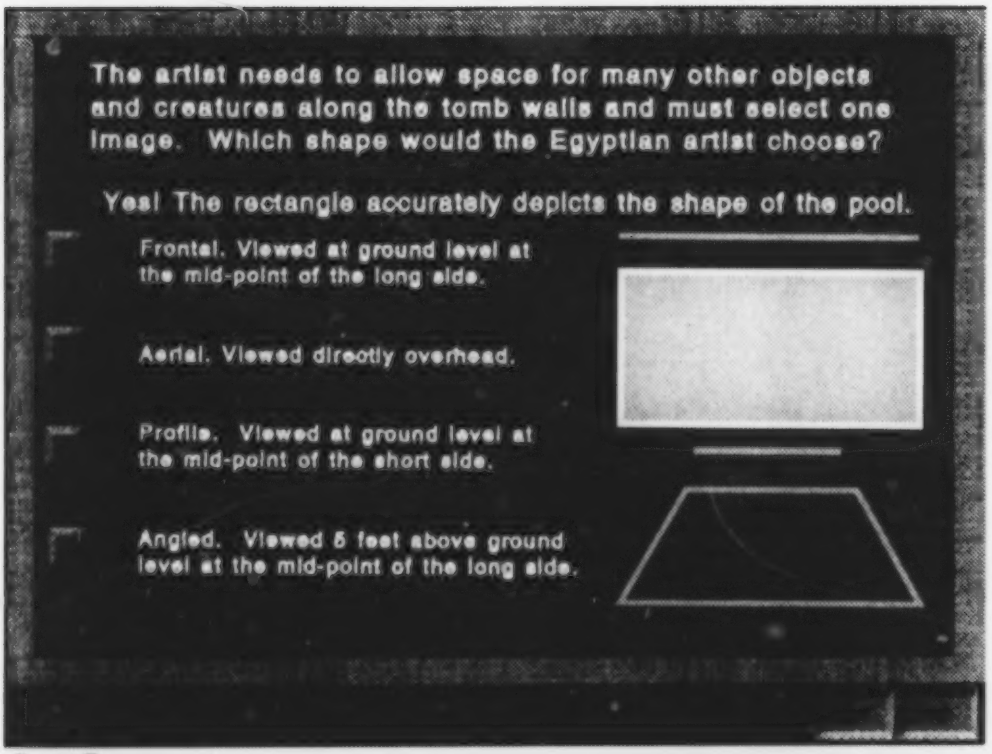
The artist needs to allow space for many other objects and creatures along the tomb walls and must select one image. Which shape would the Egyptian artist choose?
Yes! The rectangle accurately depicts the shape of the pool.
Frontal. Viewed at ground level at the mid-point of the long side.
Aerial. Viewed directly overhead.
Profile. Viewed at ground level at the mid-point of the short side.
Angled. Viewed 6 feet above ground level at the mid-point of the long side.

figure 5

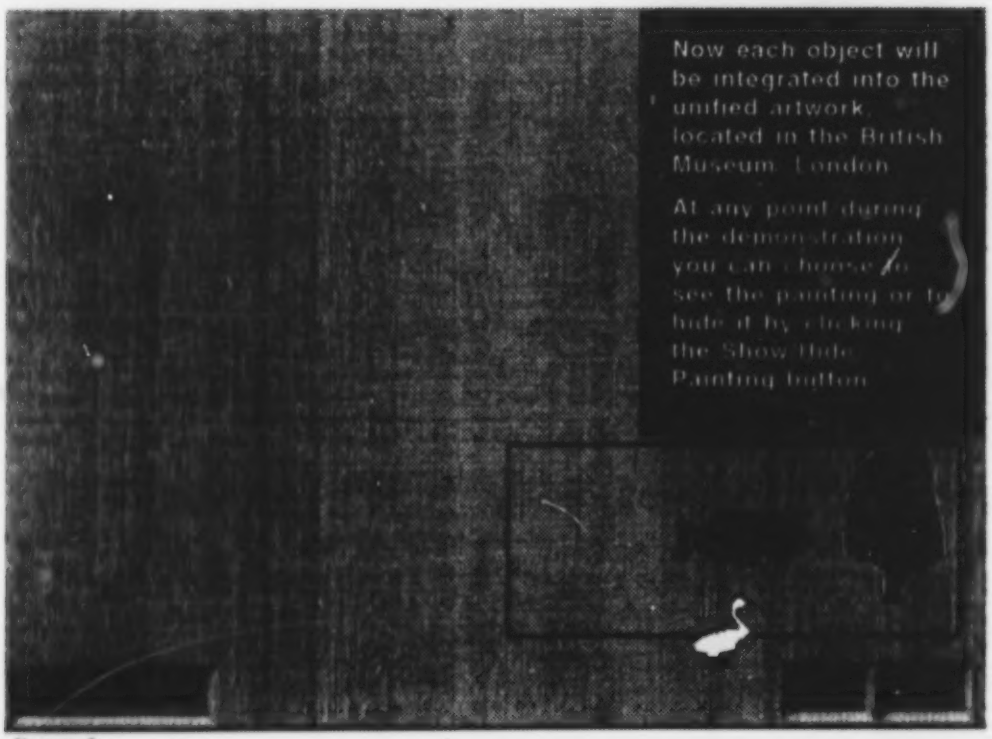
Now each object will be integrated into the unified artwork located in the British Museum London
At any point during the demonstration you can choose to see the painting or to hide it by clicking the Show Hide Painting button

figure 6

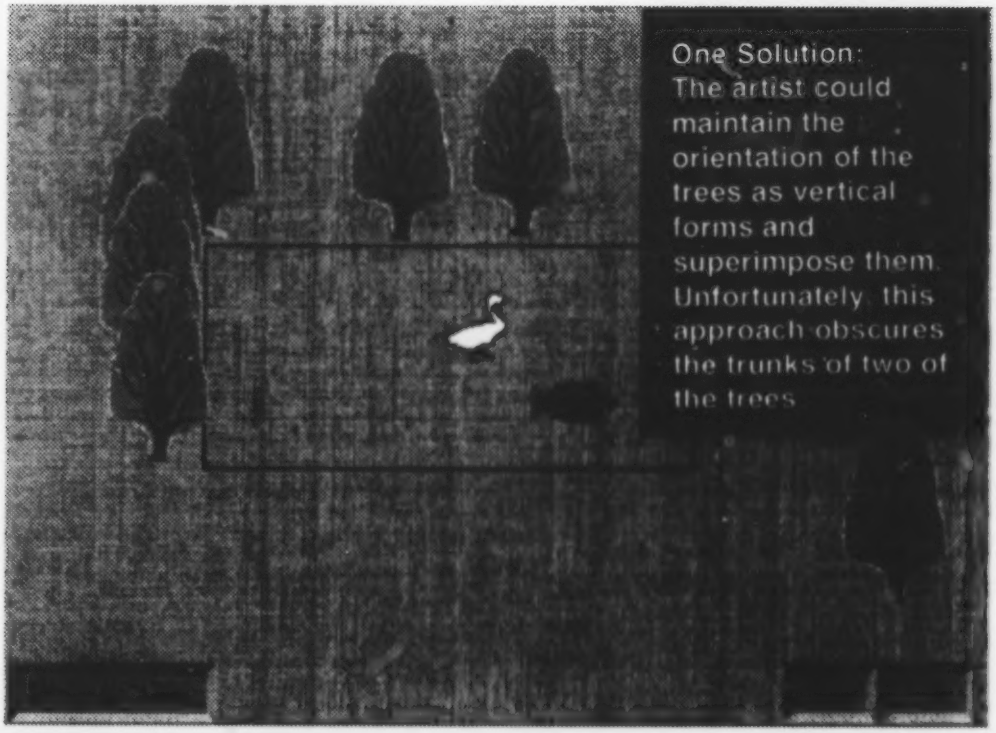
One Solution:
The artist could maintain the orientation of the trees as vertical forms and superimpose them. Unfortunately this approach obscures the trunks of two of the trees

figure 7

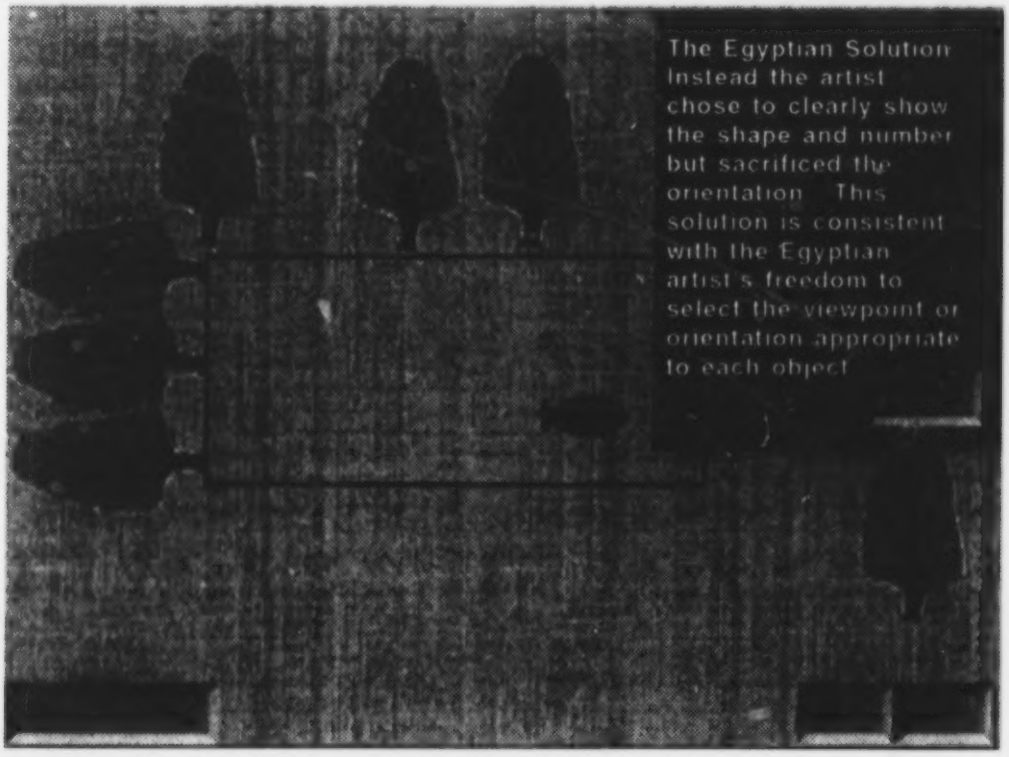
The Egyptian Solution
Instead the artist chose to clearly show the shape and number but sacrificed the orientation. This solution is consistent with the Egyptian artist's freedom to select the viewpoint or orientation appropriate to each object

figure 8

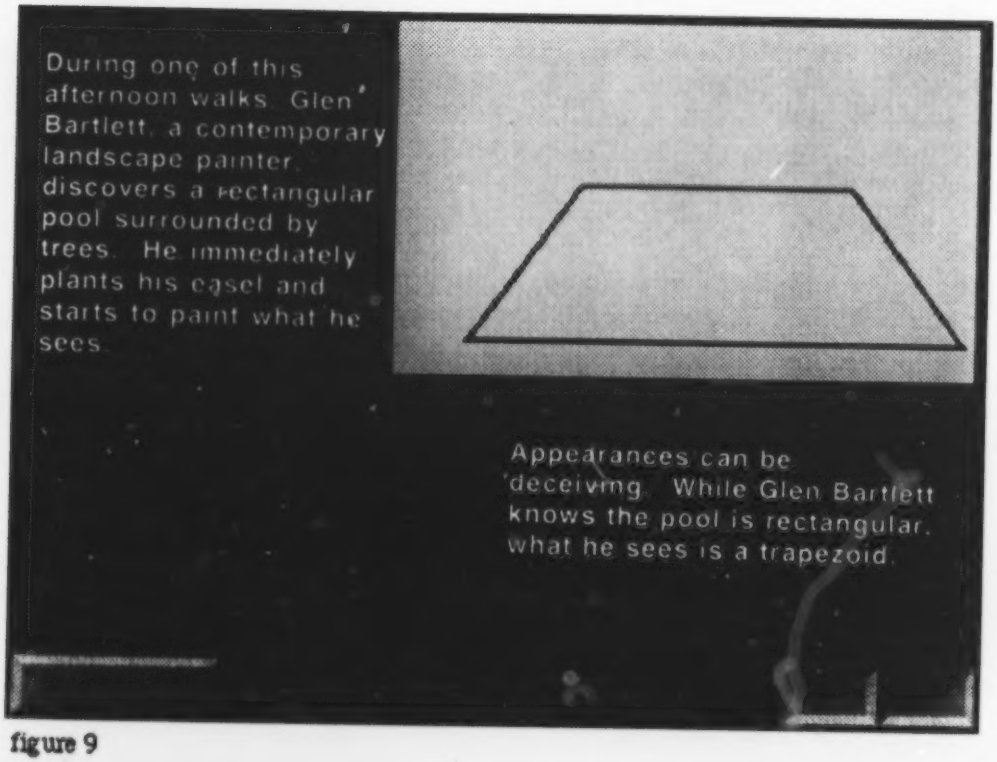
During one of this afternoon walks Glen Bartlett, a contemporary landscape painter, discovers a rectangular pool surrounded by trees. He immediately plants his easel and starts to paint what he sees.
Appearances can be deceiving. While Glen Bartlett knows the pool is rectangular, what he sees is a trapezoid.

figure 9

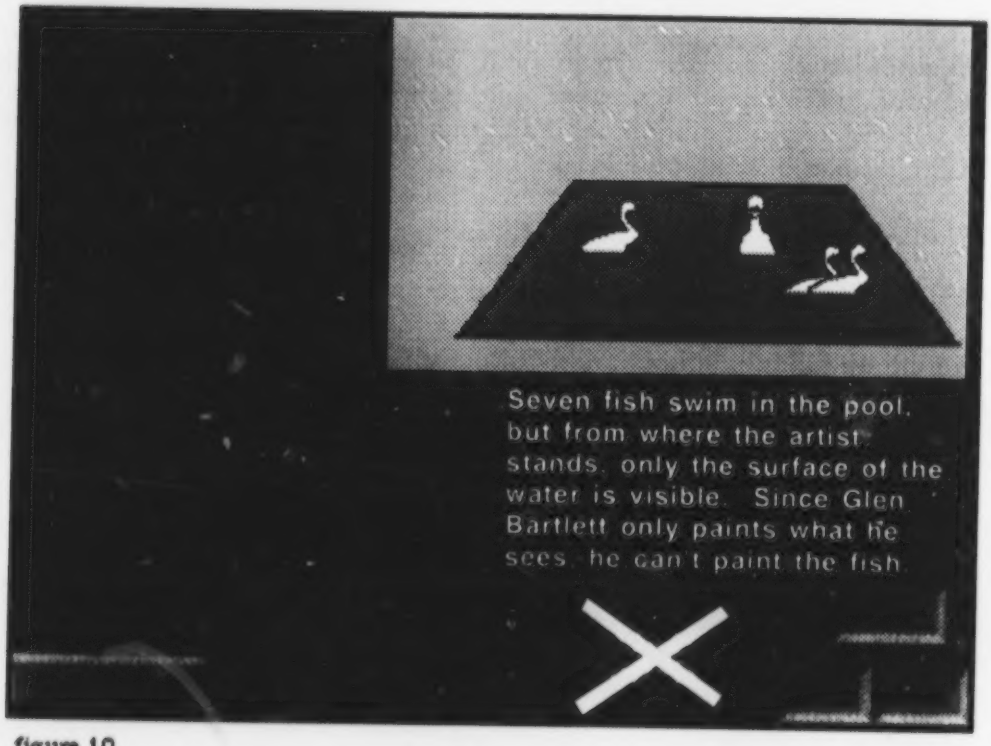
Seven fish swim in the pool, but from where the artist stands, only the surface of the water is visible. Since Glen Bartlett only paints what he sees, he can't paint the fish.

figure 10

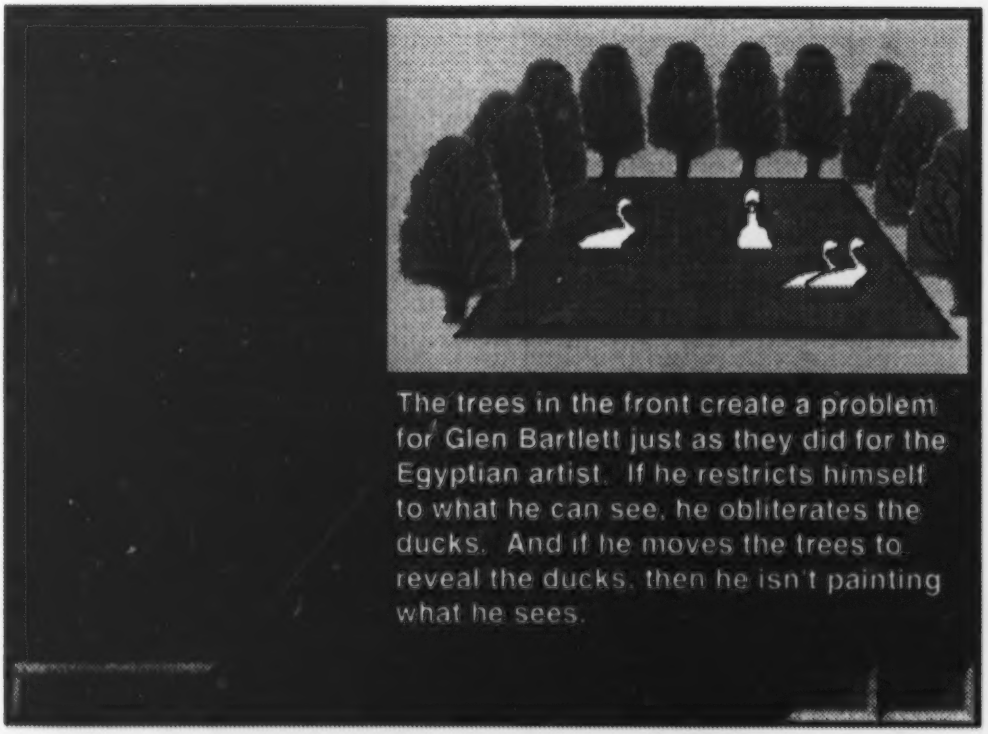
The trees in the front create a problem for Glen Bartlett just as they did for the Egyptian artist. If he restricts himself to what he can see, he obliterates the ducks. And if he moves the trees to reveal the ducks, then he isn't painting what he sees.

figure 11

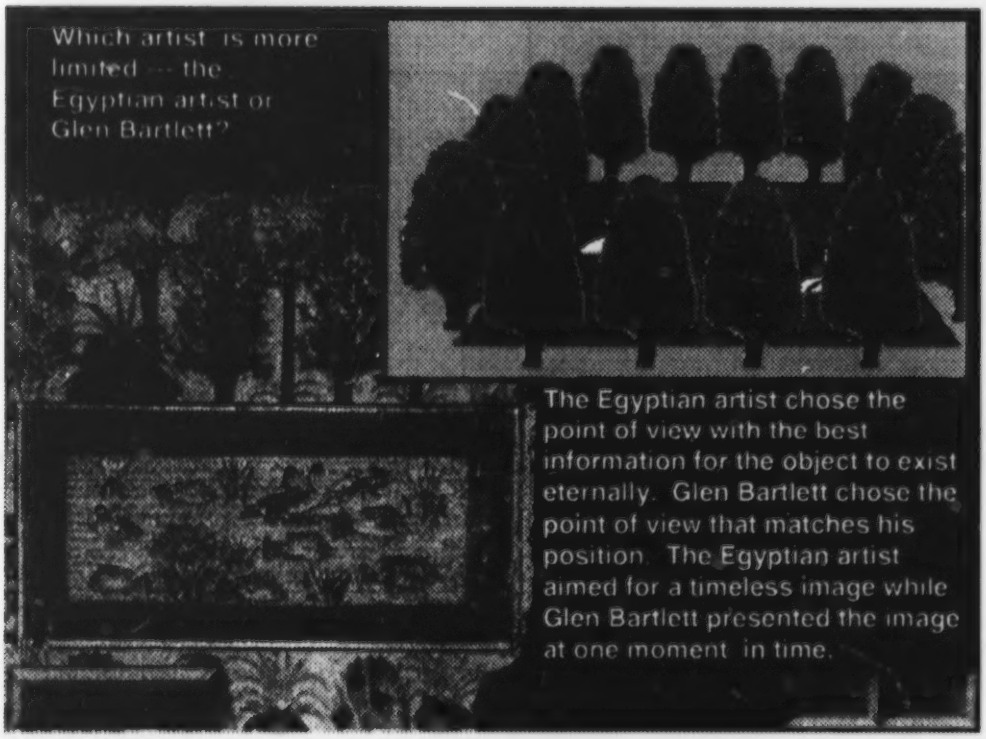
Which artist is more limited — the Egyptian artist or Glen Bartlett?
The Egyptian artist chose the point of view with the best information for the object to exist eternally. Glen Bartlett chose the point of view that matches his position. The Egyptian artist aimed for a timeless image while Glen Bartlett presented the image at one moment in time.

figure 12